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Timothy Londergan, Dan Miller, Peter Schwandt, and Rolf Siemssen

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Prithe Paul Singh

Prithe Paul Singh, professor emeritus of physics at Indiana University and former codirector of the Indiana University Cyclotron Facility (IUCF), died of Alzheimer's disease on 17 August 2003 at his home in Bloomington, Indiana.

Paul was born on 10 September 1930 in Hawalian in what is now Pakistan. The son of a railway ticket collector, he grew up during the tumultuous period of the struggle for independence and the partitioning of India, and he and his family became homeless refugees in the newly born India. Faced with these enormous challenges, he focused on what would become his life's mission: science and education.

After receiving his BSc and MSc, both in physics, from Agra University in India in 1951 and 1953, respectively, Paul worked for a year as a research assistant for the Indian Atomic Energy Commission. He then won a scholarship to earn his PhD in nuclear physics at the University of British Columbia in Vancouver, Canada. His time in Vancouver prepared him to become a scientist. There, he also met and married his wife; they later had two sons. Paul received his PhD in 1960 and remained in Canada as a National Research Council postdoctoral fellow at the Chalk River Laboratory.

In 1962, he joined Argonne National Laboratory as a research associate. He moved in 1964 to Indiana University as an assistant professor, one year before design work began on the innovative cyclotron configurations of what was to become IUCF, a major international center for medium-energy nuclear physics research.

Before the completion of the new cyclotron complex in 1975, Paul, in addition to participating actively in shaping the cyclotron's future, carried out a significant and wide-ranging nuclear physics research program at other laboratories (Argonne, the Naval Research Laboratory, and Orsay in Paris) and at universities such as Gröningen in the Netherlands. He did seminal work on the properties of giant resonances in nuclei, alpha-particle interactions with nuclei, and heavy-ion physics at medium energies. Specifically, during the mid-1960s, he studied the giant dipole resonance by radiative proton and alpha capture. In the mid-1970s, he studied the excitation of isoscalar multipole strengths by inelastic alpha scattering. In the same periods, Paul was involved in determining the alpha-nucleus optical-model potential using both phenomenological and nucleon–nucleus folding-model approaches. In the late 1960s and early 1970s, Paul also participated in systematic studies of heavy-ion scattering at Argonne and investigated the interplay among shape resonances, intermediate structure, and quasi-molecular states. Great scientific curiosity, intuition, and imaginative approaches characterized his research.

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Promoted to full professor at Indiana University in 1971, Paul became associate director of IUCF in 1978, and then served as the facility's codirector from 1979 to 1986. Despite his significant administrative effort, he continued his research program at IUCF and involved a substantial number of doctoral students, Indiana University colleagues, and foreign visitors. Although he sought a better understanding of the effective nucleon–nucleus interaction and its energy dependence over the low- to medium-energy regime, his research focus remained on nuclear structure and nuclear reaction mechanism studies. His work ranged from proton-induced inclusive and quasi-free nuclear reactions, through giant resonance excitations by medium-energy polarized protons and helium-3 and helium-4 ions, to lithium-induced cluster-transfer reactions, fusion processes, and fast-particle production.

Paul's own life experience confirmed his belief that education empowers people and transforms lives. A thorough and inspiring teacher, he supervised 14 doctoral students in 20 years, and his mentoring had a profound effect on his students.

As codirector of IUCF, Paul was known for his original ideas and his success in pushing many of them through to fruition. In addition, ideas originated by others benefited strongly from his administrative orchestration and promotion. His ability to obtain and combine financial support from various sources was essential in launching a number of projects.

Paul persistently sought ways to promote among the general public understanding of the nature and importance of basic research in science. In 1987, he and his son Pradeep got the idea of starting a two-minute radio program on general science similar to the *Star Date* series on National Public Radio. With participation from key staff of the Indiana University station WFIU-FM, Paul provided the scientific guidance and sought out funds to initiate the program, which went on the air in 1988. The program, *A Moment of Science*, is now heard on public radio stations across the country.

Above all else, Paul remained dedicated to peace and understanding among all individuals, ethnic groups, and nations, a concern that originated early in life when he witnessed the struggles of the Indian independence movement. That trauma was clearly an important impetus behind his work with the Indiana Center of Global Change and World Peace, where he served as associate director for several years. He also had a strong concern for the development of science capabilities in non-Western countries. He returned to India on several occasions as an adviser, conference organizer, participant in research and research planning, and visiting professor.

In 1991, Paul was diagnosed with Alzheimer's disease, which eventually took his life. However, the disease could not deprive him of his love for his family or the pleasure he took in walking in the beautiful forests of southern Indiana. He was a dedicated scientist, an inspiring teacher of graduate students, an innovative administrator noted for his ability to recognize new opportunities, and a promoter of global peace and of the understanding of science in less-developed countries. He was a very warm and likeable person whom his many friends around the world sadly miss.

Timothy Londergan
Dan Miller
Peter Schwandt
Indiana University
Bloomington
Rolf Siemssen
University of Gröningen
Gröningen, the Netherlands ■